

WHAT IS CLAIMED IS:

1. An apparatus for manufacturing an optical fiber  
soot according to a vapor-phase axial deposition method,  
5 wherein a cross-section shape of a combustion nozzle of a  
side burner for heating a core portion is rectangular.

2. The manufacturing apparatus according to claim 1,  
wherein a width of a rectangular cross-section of the  
10 combustion nozzle of the side burner is 0.7 times or more  
the diameter of the core portion.

3. The manufacturing apparatus according to claim 1,  
wherein a length of a tapered portion of the core soot tip  
15 portion is controllable, by changing a height H of the  
rectangular combustion nozzle of the side burner.

4. The manufacturing apparatus according to claim 1,  
wherein the rectangular combustion nozzle of the side  
20 burner is separated left and right at the center thereof.

5. The manufacturing apparatus according to claim 4,  
wherein a baffleplate is provided at the center of the  
rectangular combustion nozzle of the side burner, to  
25 separate a flame of the side burner left and right.

6. The manufacturing apparatus according to claim 1,  
wherein at least two layers of combustible gas are formed  
in the side burner.

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7. The manufacturing apparatus according to claim 1,  
wherein the length of the tapered portion of the core soot  
tip portion is controllable, by changing the nozzle tip  
shape (height of taper) of the burner hood to be attached  
10 to the burner tip portion of the side burner without  
changing the burner shape.

8. The manufacturing apparatus according to claim 7,  
wherein a height  $h$  of a hood outlet of the burner hood to  
15 be attached to the burner tip portion of the side burner  
is  $0.5H$  or greater, to a height  $H$  of the burner.

9. A method for manufacturing an optical fiber soot,  
comprising using an apparatus for manufacturing an optical  
20 fiber soot,

wherein, in the apparatus according to a vapor-phase  
axial deposition method, a cross-section shape of a  
combustion nozzle of a side burner for heating a core  
portion is rectangular.

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10. The manufacturing method according to claim 9,  
wherein a width of a rectangular cross-section of the  
combustion nozzle of the side burner is 0.7 times or more  
the diameter of the core portion.

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11. The manufacturing method according to claim 9,  
wherein a length of a tapered portion of the core soot tip  
portion is controllable, by changing a height H of the  
rectangular combustion nozzle of the side burner.

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12. The manufacturing method according to claim 9,  
wherein the rectangular combustion nozzle of the side  
burner is separated left and right at the center thereof.

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13. The manufacturing method according to claim 9,  
wherein at least two layers of combustible gas are formed  
in the side burner.

14. The manufacturing method according to claim 9,  
wherein the length of the tapered portion of the core soot  
tip portion is controllable, by changing the nozzle tip  
shape (height of taper) of the burner hood to be attached  
to the burner tip portion of the side burner without  
changing the burner shape.